CLAIMS

1. A liquid ejecting apparatus comprising a head including a plurality of liquid ejecting parts juxtaposed to array nozzles in line, wherein each of the liquid ejecting parts includes:

a liquid chamber containing liquid to be ejected;

bubble generating means provided in the liquid chamber to generate a bubble in the liquid inside the liquid chamber by the supply of energy; and

nozzle forming member that forms the nozzles for ejecting the liquid in the liquid chamber in response to the generation of the bubble by the bubble generating means,

wherein the liquid ejecting apparatus applies droplets ejected from the nozzles in the liquid ejecting parts onto a droplet landing object that moves relative to the head in a direction perpendicular to the array direction of the nozzles,

wherein the bubble generating means includes a plurality of bubble generating means juxtaposed in the liquid chamber at least in the direction perpendicular to the array direction of the nozzles, and

wherein the liquid ejecting apparatus further comprises:

ejecting-direction changing means for changing the

ejecting direction of the droplets ejected from the nozzles to a plurality of different directions along the direction perpendicular to the array direction of the nozzles by supplying the energy to at least one and at least another one of the plurality of bubble generating means, which are juxtaposed in the direction perpendicular to the array direction of the nozzles in the liquid chamber, in different manners;

time-difference ejection means for controlling ejection of droplets from a first liquid ejecting part, of the plurality of liquid ejecting parts, and a second liquid ejecting part different from the first liquid ejecting part so that a droplet is ejected from the second liquid ejecting part when a predetermined time elapses after a droplet is ejected from the first liquid ejecting part; and

ejecting-direction control means for controlling the ejection of the droplets from the first liquid ejecting part and the second liquid ejecting part by the time-difference ejection means so that the ejecting direction of the droplet ejected from the first liquid ejecting part and the ejecting direction of the droplet ejected from the second ejecting part are made different by using the ejecting-direction changing means, and so that the distance between the landing position of the droplet ejected from the first liquid ejecting part and the landing position of the droplet

ejected from the second liquid ejecting part in the direction perpendicular to the array direction of the nozzles is shorter than a relative moving distance for which the head and the droplet landing object relatively move from when the droplet ejected from the first liquid ejecting part lands to when the droplet ejected from the second liquid ejecting part lands.

2. The liquid ejecting apparatus according to claim 1, wherein the ejecting-direction control means executes control such that, when the droplets are ejected from the first liquid ejecting part and the second ejecting part by the time-difference ejection means, the angle formed by the ejecting direction of the droplet ejected from the second liquid ejecting part with a direction perpendicular to the droplet landing object is larger than the angle formed by the ejecting direction of the droplet ejected from the first liquid ejecting part with the direction perpendicular to the droplet landing object.

3. The liquid ejecting apparatus according to claim 1, wherein the ejecting-direction control means executes control such that, when the droplets are ejected from the first liquid ejecting part and the second ejecting part by the time-difference ejection means, the angle formed by the ejecting direction of the droplet ejected from the second liquid ejecting part with a direction perpendicular to the

droplet landing object is smaller than the angle formed by the ejecting direction of the droplet ejected from the first liquid ejecting part with the direction perpendicular to the droplet landing object.

4. The liquid ejecting apparatus according to claim 1, wherein the ejecting-direction control means executes control such that, when the droplets are ejected from the first liquid ejecting part and the second ejecting part by the time-difference ejection means, the landing position of the droplet ejected from the first ejecting part and the landing position of the droplet ejected from the second ejecting part are placed on a ling parallel to the array direction of the nozzles.

5. The liquid ejecting apparatus according to claim 1, wherein, when droplets are ejected from a plurality of liquid ejecting parts of a first liquid ejecting part group that are not adjacent to each other, and a plurality of liquid ejecting parts of a second liquid ejecting part group that are not adjacent to each other and do not belong to the first liquid ejecting part group, the time-difference ejection means executes control such that the droplets are ejected from the liquid ejecting parts of the second liquid ejecting part group when a predetermined time elapses after the droplets are ejected from the liquid ejecting parts of the first liquid ejecting part group,

wherein, when the droplets are ejected from the liquid ejecting parts of the first liquid ejecting part group and the second liquid ejecting part group by the time-difference ejection means, the ejecting-direction control means executes control such that the droplets are ejected from the liquid ejecting parts of the first liquid ejecting part group in a fixed direction to place the landing positions of the droplets ejected from the liquid ejecting parts of the first liquid ejecting part group on a first line parallel to the array direction of the nozzles, and such that that the droplets are ejected from the liquid ejecting parts of the second liquid ejecting part group in a fixed direction to place the landing positions of the droplets ejected from the liquid ejecting parts of the second liquid ejecting part group on a second line parallel to the array direction of the nozzles, and

wherein the ejecting-direction control means executes control such that the ejecting direction of the droplets ejected from the liquid ejecting parts of the first liquid ejecting part group and the ejecting direction of the droplets ejected from the liquid ejecting parts of the second liquid ejecting part group are made different by the ejecting-direction changing means, and such that the distance between the first line and the second line in the direction perpendicular to the array direction of the

nozzles is shorter than a relative moving distance for which the head and the droplet landing object move relative to each other from when the droplets ejected from the liquid ejecting parts of the first liquid ejecting part group land to when the droplets ejected from the liquid ejecting parts of the second liquid ejecting part group land.

6. The liquid ejecting apparatus according to claim 1, wherein the head includes a plurality of heads arranged and connected in the juxtaposing direction of the liquid ejecting parts so as to form a line head.

7. The liquid ejecting apparatus according to claim 1, wherein the bubble generating means includes a plurality of bubble generating means juxtaposed in the array direction of the nozzles in the liquid chamber, and wherein, when the energy is supplied to the plurality of bubble generating means juxtaposed in the array direction of the nozzles in the liquid chamber, the ejecting-direction changing means changes the ejecting direction of the droplets ejected from the nozzles to a plurality of different directions along the array direction of the nozzles by applying the energy to at least one and at least another one of the bubble generating means in different manners.

8. A liquid ejecting method which applies droplets ejected from nozzles of a plurality of liquid ejecting parts provided in a head onto a droplet landing object that moves

relative to the head in a direction perpendicular to the array direction of the nozzles, the liquid ejecting parts being juxtaposed to array the nozzles in line,

wherein the ejecting direction of the droplets ejected from the nozzles is variable to a plurality of different directions along the direction perpendicular to the array direction of the nozzles,

wherein control is executed so that, when droplets are ejected from a first liquid ejecting part and a second liquid ejecting part different from the first liquid ejecting part, of the plurality of liquid ejecting parts, a droplet is ejected from the second liquid ejecting part when a predetermined time elapses after a droplet is ejected from the first liquid ejecting part, and

wherein, control is executed so that, when the droplets are ejected from the first liquid ejecting part and the second liquid ejecting part, the ejecting direction of the droplet ejected from the first liquid ejecting part is different from the ejecting direction of the droplet ejected from the second liquid ejecting part, and so that the distance between the landing position of the droplet ejected from the first ejecting part and the landing position of the droplet ejected from the second ejecting part in the direction perpendicular to the array direction of the nozzles is shorter than a relative moving distance for which

the head and the droplet landing object relatively move from when the droplet ejected from the first liquid ejecting part lands to when the droplet ejected from the second liquid ejecting part lands.